

REMARKS

The Examiner has rejected claims 1, 3, and 5 under 35 U.S.C. §102(b) as being anticipated by Cox (US 5,991,426). In addition, claims 2, 4, and 6 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Cox in view of Sugahara (US 7,174,030).

After carefully considering the Examiner's rejection, the Applicants have amended claim 1 to more clearly distinguish the Cox reference. As such, claim 1 now recites a data divider to divide, per frame, digital image data into an "N" number of fields wherein "N" is an integer of 2 or more. Claim 1 also recites a code producer to produce "m" number of combinations of imperceptible codes, whereby each combination of imperceptible codes has a first imperceptible code and a second imperceptible code. The first imperceptible code is one of "m" number of first imperceptible codes and the second imperceptible code is one of "m" number of second imperceptible codes that is given by a specific function with each first imperceptible code and a specific identification code serving as variables. The specific identification code is given by the specific function with the first and second imperceptible codes of each combination serving as variables, wherein "m" is an integer of 2 or more and given by dividing "N" by an integer. Claim 1 also recites a code embedder to embed the first and second imperceptible codes of each combination into image data of each of the divided fields. The first and second imperceptible codes are embedded according to a specific rule of positional correspondence that defines a positional relationship between the first and second imperceptible codes of each combination when embedded in each field of one frame. Such is not found in Cox.

Claim 2 has also been amended to more clearly distinguish the combination of Cox and Sugahara, such that claim 2 now recites an apparatus for extracting imperceptible codes from digital image data. The imperceptible codes being embedded into the digital image data by dividing, per frame, the digital image data into "N" number of fields, wherein "N" is an integer of 2 or more, and producing "m" number of combinations of imperceptible codes, with each combination having a first imperceptible code and a second imperceptible code. The first imperceptible code is one of the "m" number of first imperceptible codes, and the second imperceptible code is one of the "m" number of second imperceptible codes given by a specific function with each first imperceptible code and a specific identification code serving

as variables. The specific identification code is given by the specific function with the first and second imperceptible codes of each combination serving as variables wherein "m" is an integer of 2 or more and given by dividing "N" by an integer. The first and second imperceptible codes of each combination are embedded into image data of each of the divided fields according to a specific rule of positional correspondence that defines a positional relationship between the first and second imperceptible codes of each combination when embedded in each field of one frame. The apparatus is given information on the division condition of the digital image data divided into the "N" number of fields per frame, the specific identification code, the specific function and the specific rule of positional correspondence. The apparatus comprises a data divider to divide, per frame, input digital image data into the "N" number of fields according to the division condition. Claim 2 also recites a code extractor to extract the "N" number of imperceptible codes from the image data divided into the "N" number of fields according to a code extraction technique corresponding to the code embedding technique. A code-pair combiner is also recited in claim 2 to combine the extracted "N" number of imperceptible codes into the "m" number of combinations according to the division condition and the rule of positional correspondence. Claim 2 also recites a code operator to conduct a specific operation to obtain the specific identification code by using the specific function with the imperceptible codes of each combination serving as variables. Finally, claim 2 recites a determiner to determine that the input digital image data has not been tampered with only when results of the specific operation is equal to the specific identification code for all of the "m" number of combinations. The combination of Cox and Sugahara does not render the recitation of amended claim 2 obvious.

Claims 3-6 have also been amended to more clearly distinguish over the corresponding cited references, whereby claim 3 has been amended in a manner similar to that of claim 1, while claim 4 has been amended in a manner similar to that of claim 2. Furthermore, claim 5 is directed to a method of embedding imperceptible codes into digital image data by a computer, and it has been amended in a manner similar to that of claim 3. Claim 6 is directed to a method of extracting imperceptible codes from digital image data by a computer, and it has been amended in a manner similar to that of claim 4.

With regard to the amended claims 1-6, the first imperceptible code, the second imperceptible code, the specific function, and the identification code respectively correspond to the imperceptible codes C(1) to C(8), the imperceptible codes C(16) to C(9), the formulas (1) and (2), and the 6-character word, which pertain to the first embodiment of the Applicants' specification.

As such, Cox does not teach or suggest the production and embedding of imperceptible codes as is recited in claims 1, 3, and 5. Additionally, Cox and Sugahara do not individually or by their combination teach or suggest the extracting of imperceptible codes as is recited in claims 2, 4, and 6. Thus, because each and every limitation of claims 1, 3, and 5 is not taught or suggested by Cox, and because each and every limitation of claims 2, 4, and 6 are not taught or suggested individually or by the combination of Cox and Sugahara, the Applicants respectfully request that the rejection of claims 1-6 be withdrawn.

In view of the foregoing, it is the Applicants' position that claims 1-6 are in condition for allowance. Reconsideration by the Examiner and the issuance of a formal Notice of Allowance is most earnestly solicited.

If any further issues remain after this amendment, a telephone call to the undersigned would be appreciated.

Respectfully submitted,



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